Endosulfan Summary

Uses

- Food Uses for Endosulfan are alfalfa (seed only), barley, beans (dry and succulent), blueberries, broccoli, Brussels sprouts, cabbage, carrots, cauliflower, celery, clover (seed only), collards, cotton, kale, corn (fresh only), cucumbers, eggplants, grapes, peppers, oats, lettuce, kohlrabi (seed only), melons, mustard greens, pineapples, rye, potatoes, pumpkins, radish (seed only), rutabaga (seed only), spinach, squash, sweet potatoes, strawberries, tobacco, tomato, turnip and wheat, apples, apricots, almonds, cherries, filberts, macadamia nuts, nectarines, pecans, pear, plums, prunes and walnuts.

- Endosulfan is also used to treat shade trees, shrubs, citrus (non-bearing), nursery stock, Christmas tree plantations, woody plants, peaches (root dip only) and ornamental trees and shrubs.

- An estimated 1.4 million to 2.2 million pounds of endosulfan are applied annually. Crops with the highest percent crop treated are squash (40%), cantaloupe (31%), pumpkins (20%). In terms of pounds applied, pecans (20%), honeydew (19%), strawberries (14%) account for the greatest agricultural use. As much as 6% of endosulfan is believed to be applied by horticultural nurseries in greenhouses.

- Endosulfan is currently limited to agricultural and commercial uses. Voluntary cancellations for all home and residential applications by the technical registrant have been submitted to the Agency.

- Endosulfan can be applied by the following methods: aerial, chemigation, groundboom, airblast sprayer, rights of way sprayer, low and high pressure handwand, dip treatment, and backpack/sprayer.

Health Effects

- In laboratory animals, endosulfan produces neurotoxicty effects, which are believed to result from overstimulation of the central nervous system.

- Such neurotoxic effects include hyperactivity, tonic contractions, involuntary muscle movements, pronounced sensitivity to noise and light, incoordination, seizures and convulsions. Endosulfan can also cause hematological effects and nephrotoxicity.

Risks

- **Dietary Risk** from food treated with endosulfan is not of concern.

- **Drinking Water Risk** is not of concern.

- **Aggregate Risk** (combined risks from food and water exposure) is not of concern.

Worker Risks are **high**:

- The risks to mixers, loaders and applicators handling and applying endosulfan using aerial equipment are of concern for most scenarios even when maximum personal protective equipment or engineering controls are used. Dermal exposure drives the risk concern.

- The risks to mixers, loaders and applicators handling and applying endosulfan to pecans (7.5 lb ai/A) pose risk concerns for most scenarios even when maximum personal protective equipment or engineering controls are used.

- Restricted Entry Intervals (REIs) ranging from 5 to 52 days would be necessary for various crops to address post-application re-entry risks. Current endosulfan labels show a restricted entry interval requirement of 24 hours.

Risks to Birds, Fish and **Mammals** are **moderate** to **high:**

- Endosulfan is likely to result in **moderate** to **high** acute and chronic risks to both terrestrial and aquatic nontarget organisms.

Incidents

- Endosulfan is highly toxic to nontarget aquatic and terrestrial animals. Incident data confirm toxicity to both birds and fish.

- Endosulfan poisoning is among the most frequently reported cause of aquatic organism incidents for pesticides. Based on EPA's Ecological Incident Information system (EIIS), the cyclodiene class of insecticides accounted for the third highest percentage of incidents (5% of the reported incidents) since 1971. Endosulfan, with 91 reported incidents, accounted for the majority at 62%.